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risk\$4 same braden sCAL\$3 same (assess\$6 or access\$6)	2

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<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ</i>			
<u>L18</u>	risk\$4 same braden sCAL\$3 same (assess\$6 or access\$6)	2	<u>L18</u>
<u>L17</u>	l2 and (automatic\$6 or automat\$6) same (trigg\$3 or sound\$3 or wake adj up or alert\$6 or activat\$3)same (doctor or physician)	2	<u>L17</u>
<u>L16</u>	L7 and risk\$3 same (rat\$3 or scal\$3)same patient	34	<u>L16</u>
<u>L15</u>	L13 and (wound or wound\$3 or cut\$) same condition	12	<u>L15</u>
<u>L14</u>	L13 and l7	0	<u>L14</u>
<u>L13</u>	L12 and perform\$6 same (treat\$6 or treatment) same(patient or recipient or illness)	237	<u>L13</u>
<u>L12</u>	(automatic\$6 or automat\$6) same (trigg\$3 or sound\$3 or wake adj up or alert\$6 or activat\$3)same (doctor or physician)	2866	<u>L12</u>
<u>L11</u>	l7 and (automatic\$6 or automat\$6) same (trigg\$3 or sound\$3 or wake adj up or alert\$6 or activat\$3)same (doctor or physician)	0	<u>L11</u>
<u>L10</u>	l7 and (automatic\$6 or automat\$3) same (trigg\$3 or sound\$3 or wake adj up or	0	<u>L10</u>

	alert\$6 or activat\$3) same (doctor or physician)		
<u>L9</u>	L7 and (automatic\$6 or automat\$3) same (trigg\$3 or sound\$3 or wake adj up or alert\$6 or activat\$3) same (doctor or physician) same perform\$6 same (treat\$6 or treatment) same (patient or recipient or illness)	0	<u>L9</u>
<u>L8</u>	L7 and (automatic\$6 or automat\$3) same (trigg\$3 or sound\$3 or wake adj up or alert\$6 or activat\$3) same (treat\$6 or treatment) same (patient or recipient or illness)	0	<u>L8</u>
<u>L7</u>	(assess\$6 or access\$6) same (skin or dermis or epidermis or cutaneous or tissue) same (wound or wound\$3 or cut\$) same condition	943	<u>L7</u>
<u>L6</u>	L5 and (wound or wound\$3 or cut\$)	5	<u>L6</u>
<u>L5</u>	L2 and (scal\$6 or rat\$3 or measu\$6) same (skin or dermis or epidermis or cutaneous or tissue)	16	<u>L5</u>
<u>L4</u>	L2 and rat\$3 same scal\$3 same (skin or dermis or epidermis or cutaneous or tissue)	0	<u>L4</u>
<u>L3</u>	L2 and rat\$3 same scal\$3 same (skin or dermis or epidermis or cutaneous or tissue) same (wound or wound\$3 or cut\$)	0	<u>L3</u>
<u>L2</u>	risk\$3 same (assess\$6 or access\$6) same (tool or software or operation system) same (patient or recipient or illness) same condition	55	<u>L2</u>
<u>L1</u>	risk\$3 same (assess\$6 or access\$6) same (tool or software or operation system) same (patient or recipient or illness) same (rat\$3 or braden) same scal\$3 same condition	0	<u>L1</u>

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L6: Entry 36 of 46

File: USPT

Jul 30, 2002

DOCUMENT-IDENTIFIER: US 6427083 B1

TITLE: Defibrillation system

Brief Summary Text (35):

The electrode arrays of the present invention preferably are designed for long term patient wearability. To this end, the electrode arrays include a therapeutic or prophylactic material which ameliorates, reduces or prevents irritation to the patient's skin in contact with the electrode arrays. Therapeutic or prophylactic materials may include, for example, wound healing agents, moisturizers, emollients, protective agents or antibacterial agents. Each electrode array comprises electrically conductive areas (electrodes) and electrically non-conductive areas (passive areas). The electrodes are capable of sensing the electrical activity of the heart, delivering electrical impulses (cardio and defibrillation) to the heart, as well as tactile stimulation and pacing signals.

Detailed Description Text (34):

The hydrogel on each sensing electrode may also include a therapeutic or prophylactic agent which reduces skin irritation caused by the electrode, and/or which promotes healing of wounds or skin irritation that may be caused by the sensing electrodes. Such an agent may be applied directly to each electrode, or capsules which release the agent in response to the defibrillation energy may be applied to the electrode. A therapeutic or prophylactic agent may also be included on each of pads 22 and 24 in order to promote skin health. Agents which render the patient's skin porous, such as keratolytic agents (e.g., salicylic acid) or rubefacient (e.g., methyl salicylate) may be included on each electrode or pad so as to facilitate transmission of the therapeutic or prophylactic agent into the skin and/or to permit use of low water content hydrogels.

Detailed Description Text (65):

Data logging memory block 57 stores both the operational history of defibrillator 10 and information relating to the patient. More specifically, data logging memory block 57 stores abnormal heart activity of the patient; the patient's ECG before, during and after application of defibrillation energy; an indication that the patient has been trained for use with defibrillator 10; analyzed ECG conditions; ECG markings, including defibrillation synch, external pace pulse, high slew rate, and saturation; patient thoracic and electrode-to-skin impedance measurements over time; voice, tone, and buzzer prompts; displayed messages; information concerning patient interaction with the defibrillator 10 (e.g., if and when the patient has pressed the response button); transmitted defibrillation waveform measurements, including current and voltage versus time; execution time measurements of defibrillator 10 for use in determining if defibrillator 10 operated as expected; detected operational errors of defibrillator 10 (including a type of error, persistence of the error, whether defibrillator 10 was in the operational mode when the error occurred, whether defibrillation had begun when the error occurred, and whether a cardiac arrhythmia had been detected when the error occurred); calibration data for defibrillator 10; the serial number of defibrillator 10; a harness identification ID of an electrode harness interfaced to defibrillator 10; cold and warm start information for defibrillator 10; artifact noise in the patient; data from an accelerometer relating to motion of the patient; documentation regarding the defibrillator; instructions on how to use the

defibrillator; and patient parameters. These patient parameters include, but are not limited to, the patient's ID number which is a unique assigned identifier for each patient (range of 1 to 9,999; default=0); the patient's name; the language used for voice and corresponding text messages; a minimum audio level to which a patient responds; minimum tactile stimulation signal to which a patient responds; maximum tactile stimulation signal for a patient; pacing bradycardia rate--heartbeat rate below which bradycardia will be declared and pace rescue initiated; pace current level--current level needed to ensure pace rescue; a ventricular tachycardia rate at which defibrillation energy is to be delivered to the patient (range of 150 to 180 beats per minute (hereinafter "bpm")); the patient's thoracic impedance range, meaning, the impedance range during which defibrillation energy may be transmitted to the patient (range of 15 to 200 ohms); a time and a date at which the defibrillator was issued to the patient; a name of a clinic at an external location (e.g., central repository 9, a hospital, a doctor's office, etc.); a name of a clinician at the external location; and an electrode-to-skin impedance range which is used to determine whether the electrodes are not attached, or are improperly attached, to the patient. Also stored with the patient parameters is a checksum which is used to determine their validity.

Detailed Description Text (82):

The algorithm shown in FIG. 16 essentially includes three stages, ECG input and prefiltering stage 150, arrhythmia risk assessment stage 151, and therapy decision algorithm stage 152. ECG input and prefiltering stage 150 includes preconditioning filter step 154, during which baseline stabilizer processing, noise filtering, bandpass filtering, and auto-gain control are performed on the patient's input ECG data. In preferred embodiments, at least some of these functions are performed in hardware in patient measurements block 56 (e.g., ECG filter 119 and ECG amplifier 92 described below with respect to FIG. 13). Following preconditioning filter step 154, the ECG data is then transmitted to both rhythm analysis step 156 and fault detection step 157.

Detailed Description Text (83):

Rhythm analysis step 156 detects peaks in the patient's ECG, a beat morphology of the patient's heart, and a rhythm interval of the patient's heart. Fault detection step 157 determines a noise level estimate for noise in the patient's ECG, the electrode quality, meaning connection of electrodes 31 to the patient, and the patient's ECG signal amplitude. Results from steps 156 and 157 are provided to preliminary decision matrix 158 which makes a preliminary determination, based on the information provided from steps 156 and 157 and based on stored patient parameters, whether the patient's ECG comprises a benign rhythm, a complex rhythm, or a rhythm that constitutes a risk of arrhythmia. This preliminary determination is then provided to periodic arrhythmia review step 160. Periodic arrhythmia review step 160 samples the input ECG data for fixed time intervals (e.g., 10 to 20 seconds), or at variable time intervals for arrhythmias which are preliminarily determined to be complex. This data, along with the preliminary determination made in preliminary decision matrix 158, is then passed along to arrhythmia risk assessment stage 151, specifically to rhythm analysis step 161.

Detailed Description Text (103):

Data recording module 82 controls transmission of data between defibrillator 10, base station. 2 and computers 6 and 210. This data can include as noted above, abnormal heart activity of the patient; the patient's ECG before, during and after application of defibrillation energy; analyzed ECG conditions; ECG markings, including defibrillation synch, external pace pulse, high slew rate, and saturation; patient thoracic and electrode-to-skin impedance measurements over time; voice, tone, and buzzer prompts; displayed messages; information concerning patient interaction with the defibrillator 10; transmitted defibrillation waveform measurements, including current and voltage versus time; execution time measurements of defibrillator 10 for use in determining if defibrillator 10 operated as expected; detected operational errors of defibrillator 10; calibration

data for defibrillator 10; the serial number of defibrillator 10; a harness identification ID of an electrode harness interfaced to defibrillator 10; cold and warm start information for defibrillator 10; artifact noise in the patient; data from an accelerometer relating to motion of the patient; and patient parameters. Data recording module 82 also controls storage of the foregoing data in data logging memory block 57.

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